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EXAMINER

NGUYEN, THUAN T

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2685

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,338

Applicant(s)

LYNCH, WILLIAM CHARLES

Examiner

THUAN T. NGUYEN

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-185 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-185 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Reissue Applications

1. The original patent, or a statement as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

Specification

2. New claims 139-185 added to the patent **must** follow the number of the highest numbered patent claim (37 CFR 1.173 (e)) and **must be underlined in their entirety (37 CFR 1.173 (d))**

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-10, 12-19, 21-33, 35-49, 51-57, and 59-185 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leuca et al. (US Patent 6,201,797 B1) in view of Davis et al. (US Patent 5,287,541).

Regarding claims 1, 10, 19, 33, 49, 57, and 67, Leuca teaches a space-based server network architecture (Leuca, Fig. 1) which permits on demand transfer of data between a client satellite in an orbit about earth and an earth station irrespective of the location of the client

Art Unit: 2685

satellite relative to the earth station, i.e., client satellites such as satellites 24 and 29 communicates to earth stations 23 or 29 irrespective of the location of client satellite because a Low Earth Orbit (LEO) or a Medium Earth Orbit (MEO) satellite or a Digital Broadcast Satellite (DBS) can be applied (Leuca, col. 3/lines 18-30), the space-based server architecture comprising:

a) a plurality of client satellites located in one or more earth orbits (as shown in Fig. 1, and col. 3/lines 18-30 of Leuca as noted earlier);

b) a plurality of server satellites located spaced apart in at least one earth orbit, i.e., system 10 is considered as a satellite server comprising data server 12 and mobile terminal 11a-11f on-board of an airplane or a space vehicle (Leuca, col. 2/line 58 to col. 3/line 3) and being sufficient in number to provide substantially total world-wide communications coverage to and connectivity with designated and authorized earth stations and said plurality of client satellites (see Davis below), said at least one earth orbit of said server satellites being higher than said one or more earth orbits of said client satellites, each of said server satellites (Leuca, Fig. 1 item 10) including:

i) communications downlink means for providing intercommunication with designated and authorized earth stations within its field of view, i.e., communication downlink connects the space server 10 to earth stations 24a or 27 or 29 via interface SIC 18 or NATS 19 or DBS decoder 20 respectively (Leuca, Fig. 1, and col. 3/line 30 to col. 4/line 61);

ii) communications crosslink means for providing intercommunications with other server satellites within its field of view, i.e., communications to other satellites within its field of view is suggested (Lueca, and col. 3/lines 18-30, and col. 6/lines 7-13);

iii) communications link means for providing intercommunication with a client satellite within its field of view, i.e., communications to other satellites within its field of view is suggested (Leuca, and col. 3/lines 18-30, and col. 6/lines 7-13); and

c) whereby control data for a particular client satellite originating from an earth station is passed directly to an accessible server satellite within its terrestrial communications link field of view and said accessible server satellite, in turn, passes said control data either directly to said particular client satellite over said communications link means if within its communications field of view, or transmits said control data over said communications crosslink means to a server satellite having direct communications access to said particular client satellite, i.e., the Application Programming Interface (API) is within the space server for call controlling and other Operation, Administration, Maintenance and Provision functions for client satellites (Leuca, col. 2/line 58 to col. 3/line 3); and

d) whereby each client satellite can at any time transmit its mission data to a designated earth station, irrespective of its location on earth, by transmitting said mission data over said communications link means to a server satellite within its communication field of view which, in turn, passes said mission data either directly to the designated earth station over said communications downlink means if within its communications field of view, or transmits said mission data over said communications crosslink means to a server satellite having communications downlink access to the designated earth station, i.e., client satellites 24 and 29 at any time can transmits its mission data to earth station 24a and 29 while still maintaining communication to the space server 10, and the space server 10 can also directly access or communicate to the earth station 22 directly using an antenna 21 (Leuca, as shown in Fig. 1).

Leuca does not show to have more than one of the space server 10 as a plurality of server satellites “and being sufficient in number to provide substantially total world-wide communications coverage to and connectivity with designated and authorized earth stations and said plurality of client satellites” as claimed; however, since Leuca suggests to have at least one space server 10 as shown in Fig. 1 and it can be applied to a space vehicle such as a satellite (Leuca, col. 2/line 58 to col. 3/line 3), one of ordinary skill in the art can easily generalize this technique for a plurality of space vehicles or satellites as space servers, if needed, to cover a larger area of coverage. In a similar reasoning, Davis teaches to have a plurality of satellites (Fig. 4), wherein each satellite has features as a server itself in communicating to other satellites using inter-satellite receiver 828 and transmitter 814 as well as uplink receiver 808 and downlink transmitter 824 for mobile users (Fig. 8C, and col. 11/line 27 to col. 12/line 42) and/or earth stations (Fig. 1A, and col. 4/line 30 to col. 5/line 21). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Leuca’s system with a plurality of server satellites as taught by Davis in order to ensure as “being sufficient in number to provide substantially total world-wide communications coverage to and connectivity with designated and authorized earth stations and said plurality of client satellites” as claimed.

As for claims 3, 5, 12, 14, 22, 35, 37, 51, 59, and 61, Leuca teaches that “wherein said communication crosslink means comprises a wide band optical laser communications link” and “W-band communication link” (for Wide-band), i.e., a FDDI and ATM networks are used for communicating between satellites (col. 3/lines 4-17) for fiber optical laser link and wide band (ATM) are used, as well as broadband satellite system is used (col. 4/lines 45-61 for wide band or broadband).

As for claims 4, 6, 13, 15, 21, 24, 36, 39, 53, 60, and 63, Leuca teaches “wherein said communication crosslink means comprises a radio frequency” and “an omni RF communications link” between the server satellite and client satellite, i.e., moving antennas or omni-direction antennas are used for RF wireless links between space server 10 and other satellites (Leuca, col. 4/line 62 to col. 5/line 3).

As for claims 7, 26, and 41, the combination of Leuca and Davis teaches to include “a high-capacity memory on-board sufficient for cache storage or longer term storage of earth station generated communications data” (Leuca, Fig. 1/item 16 for a database for long-term storage; and Davis, Fig. 8C, item 816 for a long-term satellite memory and a ROM 832 for a cache or temporary memory within the server satellite 10).

As for claims 8-9, 16-18, 23, 25, 27-32, 38, 40, 42-48, 52, 54-56, 62, 64-66, 68-74, and 75-94, Leuca teaches these claims for the steps of “wherein said server satellite include communications links oriented pointed upward towards said server satellites” (Figs. 1 & 2 as server 10 of Fig. 1 can be applied on satellite 29b, see claim 1 above, with communication link 29 from station 29a pointed upward toward the server satellite 29b); “said server satellites are placed in geosynchronous orbit and in either one of a low or medium earth orbit”, i.e., GEO and/or LEO or MEO satellite system is used (Leuca, col. 3/line 18-30 & col. 4/line 45 to col. 5/line 15); “wherein said at least one earth station comprises land-based, sea-based, and airborne platforms” (col. 3/lines 18-30 and col. 5/line 57-col. 6/line 38 for suggesting connection to any network, not limited to land-based or sea-based or airborne platforms); and “wherein the network protocol comprises a form of transmission control protocol/internet protocol (TCP/IP) and space communications protocol standards-transport protocol (SCPS-TP)” (Leuca, col. 6/lines 34-46 for

Art Unit: 2685

TCP/IP; and col. 4/lines 9-26 for SATCOM and col. 5/line 57 –col. 6/line 13 as SCPS-TP for satellite communication links suggested).

As for claims 96-185, these claims with same limitations in break-down forms or broad claims forms are rejected for the reasons given in the scope of claims 1, 3-10, 12-19, 21-33, 35-49, 51-57, and 59-94 as disclosed in details above.

5. Claims 2, 11, 20, 34, 50, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leuca et al. (US Patent 6,201,797 B1) in view of Davis et al. (US Patent 5,287,541) and Lux (US Patent 5,274,836).

As for claims 2, 11, 20, 34, 50, and 58, Leuca and Davis do not suggest the step of “wherein said communication downlink means comprise a high-frequency band spot beam antenna sufficient to provide jam-resistant communications”; however, Lux teaches an exact same technique of offering “jam-resistant” using a high gain narrow beam antenna (narrow beam meaning same as spot beam) using in radio transmitter/receiver in military for use in combat needs to be very difficult to jam (col. 1/lines 15-20, col. 6/lines 21-38, and col. 7/line 57 to col. 8/line 30 for the related communication system for “jam-resistant”). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Leuca and Davis’s system with a long time known technique for providing “jam resistant” using a high gain narrow beam antenna, with the motivation as noted in military use for others difficult to jam, as suggested by Lux.

Art Unit: 2685

6. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306, (for Technology Center 2600 only)

*Hand-delivered responses should be brought to Crystal Park II,
2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Thuan Nguyen whose telephone number is (703) 308-5860. The examiner can normally be reached on Monday-Friday from 9:00 AM to 6:30 PM, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office** whose telephone number is **(703) 306-0377**.



TONY T. NGUYEN
PATENT EXAMINER *750*

Tony T. Nguyen
Art Unit 2685
March 18, 2004